

## REMARKS

### I. STATUS OF THE CLAIMS

New claims 20-30 are added.

Therefore, it is respectfully submitted that claims 1-4 and 8-30 are currently pending.

### II. REJECTION OF CLAIMS 1-4 AND 8-19 UNDER 35 USC 103 AS BEING OBVIOUS OVER DIGIOVANNI (US PATENT NO. 5,406,404) IN VIEW OF NAITO (US PATENT NO. 5,568,310)

In the present invention as recited, for example, in claim 1 as amended herein, an optical transmission system comprises (a) an optical transmitter transmitting a WDM optical signal including a plurality of optical signals with different wavelengths; (b) a multi-stage optical amplifier amplifying the WDM optical signal received from the optical transmitter with substantially equal gain with respect to the wavelengths of the plurality of the optical signals independently of variation of the received WDM optical signal level and outputting the amplified WDM optical signal; and (c) an optical receiver receiving the amplified WDM optical signal output from the multi-stage optical amplifier.

Moreover, as recited, for example, in claim 1, the multi-stage optical amplifier includes (i) a first-stage optical amplifier which amplifies the received WDM optical signal, (ii) a level controller which controls a power level of the WDM optical signal amplified by the first-stage optical amplifier, and (iii) a second-stage optical amplifier which amplifies the WDM optical signal of which level is controlled by the level controller.

Therefore, as recited, for example, in claim 1, the multi-stage optical amplifier amplifies the WDM optical signal received from the optical transmitter with substantially equal gain with respect to the wavelengths of the plurality of the optical signals *independently of variation of the received WDM optical signal level*. Support for this feature is found, for example, on page 2, lines 16-20; FIG. 1 and the corresponding disclosure on page 11, lines 29-34, and page 12, lines 17-19, of the specification.

DiGiovanni discloses a plurality of optical amplifiers dispersed along a transmission line. See, for example, FIG. 1A and column 4, lines 13-15, of DiGiovanni. The structure of the optical amplifiers is disclosed, for example, in FIG. 1B, of DeGiovanni.

Moreover, FIG. 1A of DiGiovanni discloses the use of variable attenuators 2 dispersed along the transmission line between the various optical amplifiers.

However, DiGiovanni does not disclose or suggest any manner of obtaining substantially equal gain with respect to wavelengths *independently of variation of the received WDM optical*

*signal level*, as recited, for example, in claim 1.

The above comments are specifically directed to claim 1. However, it is respectfully submitted that the comments would be helpful in understanding differences of various other claims over DiGiovanni.

\* \* \*

In the present invention as recited, for example, in claim 3 as amended herein, an optical transmission system comprises (a) an optical transmitter transmitting a WDM optical signal including a plurality of optical signals with different wavelengths; (b) a multi-stage optical amplifier to amplify the WDM optical signal from the optical transmitter with substantially equal gain, over the wavelengths of the optical signals and time, and to output the amplified WDM optical signal; and (c) an optical receiver receiving the amplified WDM optical signal from the multi-stage optical amplifier.

As recited, for example, in claim 3, the multi-stage optical amplifier includes (i) a first-stage optical amplifier which amplifies the WDM optical signal, (ii) a level controller which controls a power level of the WDM optical signal amplified by the first-stage optical amplifier, and (iii) a second-stage optical amplifier which amplifies the WDM optical signal of which level is controlled by the level controller.

Support for the amendment to claim 3 is found, for example, on page 2, lines 16-20; FIG. 1 and the corresponding disclosure on page 11, lines 29-34, and page 12, lines 17-19, of the specification.

In accordance with the above comments, it is respectfully submitted that DiGiovanni does not disclose or suggest any manner of obtaining substantially equal gain, over wavelengths *and time*, as recited, for example, in claim 3.

The above comments are specifically directed to claim 3. However, it is respectfully submitted that the comments would be helpful in understanding differences of various other claims over DiGiovanni.

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In view of the above, it is respectfully submitted that the rejection is overcome.

### III. CONCLUSION

In view of the above, it is respectfully submitted that the application is in condition for allowance, and a Notice of Allowance is earnestly solicited.

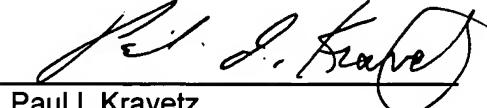
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Respectfully submitted,

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Date: October 5, 2005

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